Visualizing Housing Market Trends: An Analysis of Sale Prices and Features using Tableau

1. INTRODUCTION

1.1 Project Overview

This project focuses on exploring and visualizing trends in the housing market using Tableau. By examining various housing features such as sale prices, renovations, number of rooms, and area sizes, the goal is to uncover meaningful patterns that impact housing prices. This data-driven approach aids in understanding how structural attributes and renovations contribute to real estate value. By visualizing relationships between sale prices and features like renovations, number of rooms, house age, and grades, the goal is to help stakeholders make informed decisions. Tableau enables quick, interactive insights, supporting pricing strategies and identifying high-value property traits. the aim of addressing key challenges in understanding the diverse factors that influence house sale prices and market trends. Housing data, including variables such **as** years since renovation, house age, number of bathrooms, bedrooms, floors, basement size, and overall condition**,** was used to gain actionable insights into the real estate landscape.

By leveraging Tableau, a powerful data visualization tool, complex housing datasets were transformed into interactive, insightful dashboards. These visuals highlight:

- The relationship between house features and sale prices
- The effect of renovations on property value over time
- The distribution of house grades, sizes, and configurations contributing most to sales
- Insights into regional and structural preferences in the housing market
- Inform strategic decisions on property pricing and renovation investments
- Understand which configurations (bed/bath/floor) drive the highest revenue
- Optimize marketing strategies based on current housing trends
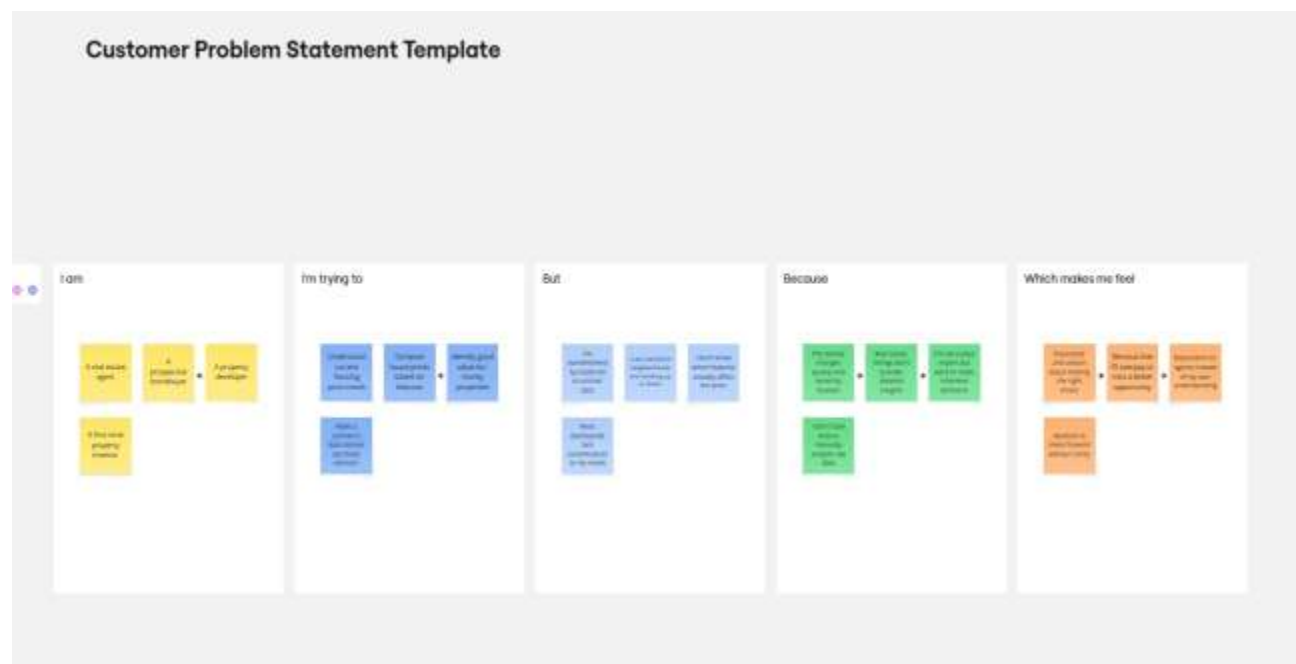
1.2 Purpose

The primary purpose is to empower real estate analysts and stakeholders with insights derived from visual analytics, enabling informed decisions in pricing strategies, marketing, and renovation planning.

☐ Analyze historical housing data to identify trends in sale prices

☐ Visualize the impact of property features (size, grade, rooms, renovations) on sales

☐ Enable data-driven decision-making for stakeholders

☐ Support market positioning and pricing strategies through visual insights

2. IDEATION PHASE

2.1 Problem Statement

ABC Company lacks clarity on which house features most influence sale prices. Without this knowledge, pricing and renovation strategies remain inefficient. A well-articulated customer problem statement allows you and your team to find the ideal solution for the challenges your customers face. Throughout the process, you'll also be able to empathize with your customers, which helps you better understand how they perceive your product or service.

Customer Problem Statement

I am	I'm trying to	But	Because	Which makes me
A prospective homebuyer	Understand current housing price trends	I'm overwhelmed by scattered or unclear data	The market changes quickly and varies by location	Frustrated and unsure about making the rig int choice
A first-time property investor	Compare house prices based on features (e.g.. area. bedrcoms)	I don't know which features actually affect the price	Real estate listings don't provide detailed insights	Nervous that I'll overpay or miss a better opportunity
Someone looking to relocate to a better area	Identify good value-for-money properties	I can't tell which neighborhoods are trending up or down	I'm not a data expert but want to make informed decisions	Dependent on agents instead of my own understan ding
A buyer with a limited budget	Make a confident, data-backed purchase decision	Most dashboards lack customization to my needs	I don't have time to manually analyze raw data	Hesitant to move forw ard without clarity

Example:

I am	I'm trying to	But	Because	Which makes me feel
A small-scale home seller	Identify which property features sell best	It's hard to personalize visualizations per client type	Visual clarity drives faster client decisions	Stressed by inconsistent data accuracy

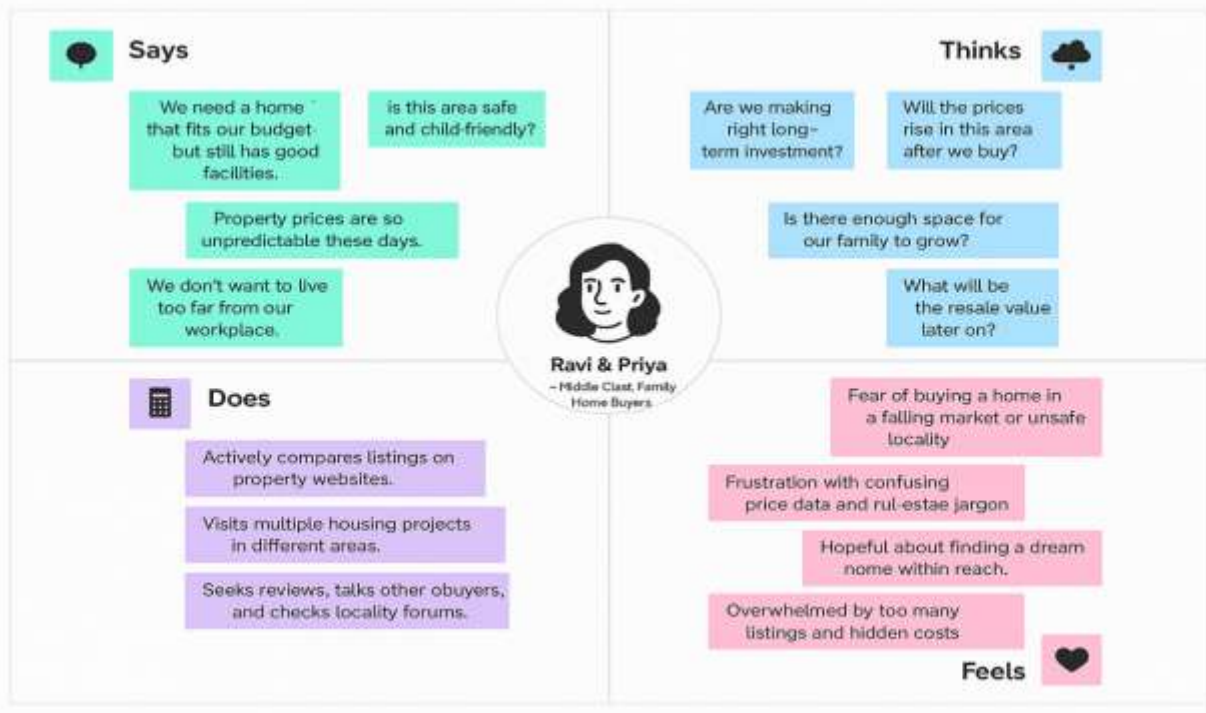| Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	A prospective homebuyer	Understand current housing price trends	I'm overwhel med by scattered	The market changes quickly and	Frustrated and unsure about making the right choice

			or unclear data	varies by location	
PS-2	first-time property investor	Compare house prices based on features	I don't know which features actually affect the price	Real estate listings don't provide detailed insights	Nervous that I'll overpay or miss a better opportunity
PS-3	buyer with a limited budget	Identify good value-for-money properties	I can't tell which neighborhoods are trending up or down	I'm not a data expert but want to make informed decisions	Dependent on agents instead of my own understanding
PS-4	Someone looking to relocate to a better area	Make a confident, data-backed purchase decision	Most dashboards lack customization to my needs	I don't have time to manually analyze raw data	Hesitant to move forward without clarity

2.2 Empathy Map Canvas

An Empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviours and attitudes. Empathy mapping was conducted to understand the needs of stakeholders:

- Think & Feel: Need insights into profitable features.
- Hear: Market buzz about trending renovations.
- See: Incomplete market analytics.
- Say & Do: Want data-backed decisions.
- Pain: Guess-based pricing and low ROI.
- Gain: Clear guidance on feature-value relation.
- It is a useful tool to helps teams better understand their users.
- Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.

Example-1:

Visualizing Housing Market Trends: An Analysis of Sale Prices and Features using Tableau
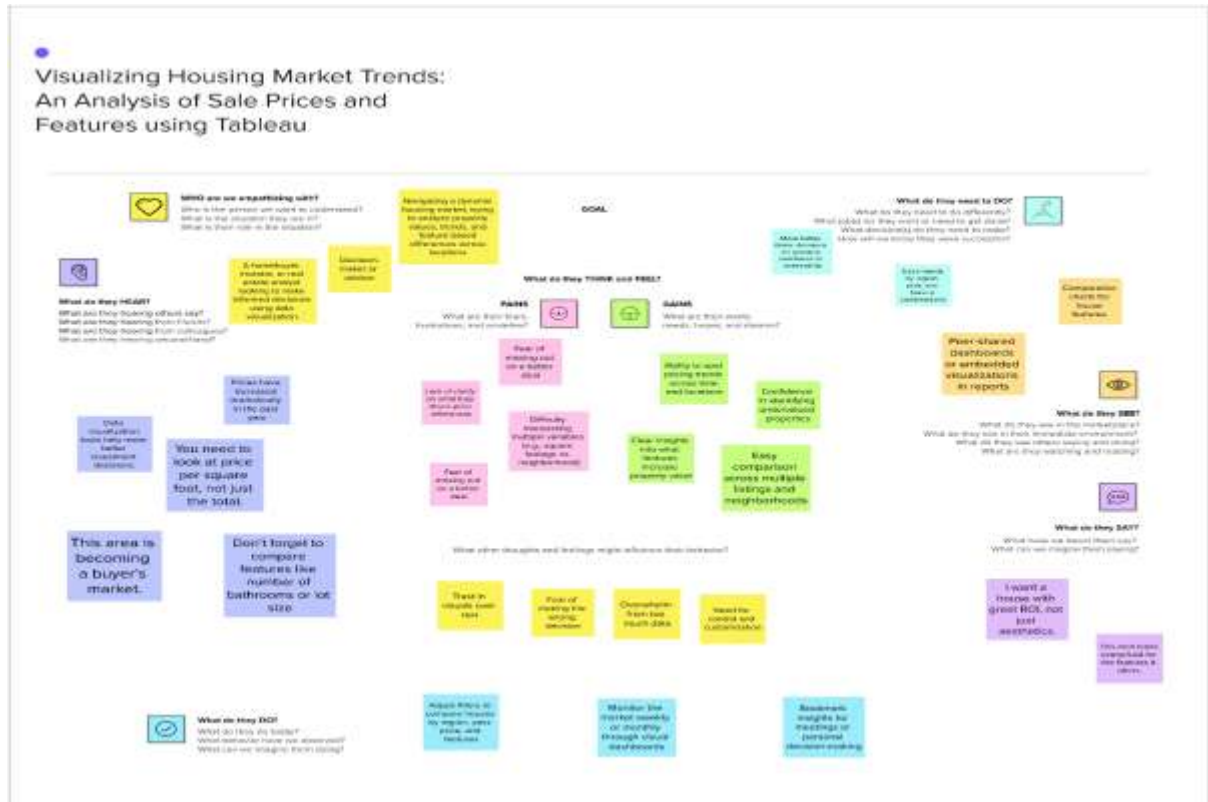
Example-2

2.3 Brainstorming

Ideas included:

- Visualization of sale prices by features (rooms, size).
- Tracking renovation impact over time.
- Interactive dashboards for comparison.
- Time series analysis of property sales.

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

Step-1: Team Gathering, Collaboration and Select the Problem Statement

Step-2: Brainstorm, Idea Listing and Grouping
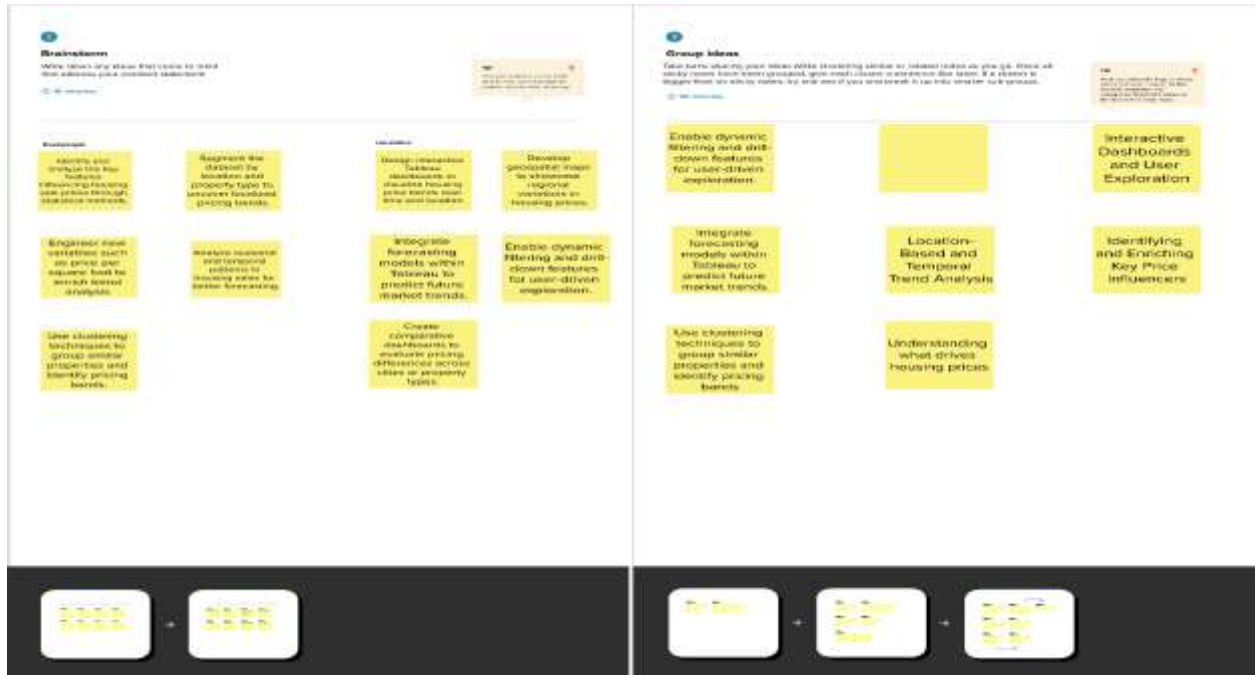
Step-3: Idea Prioritization
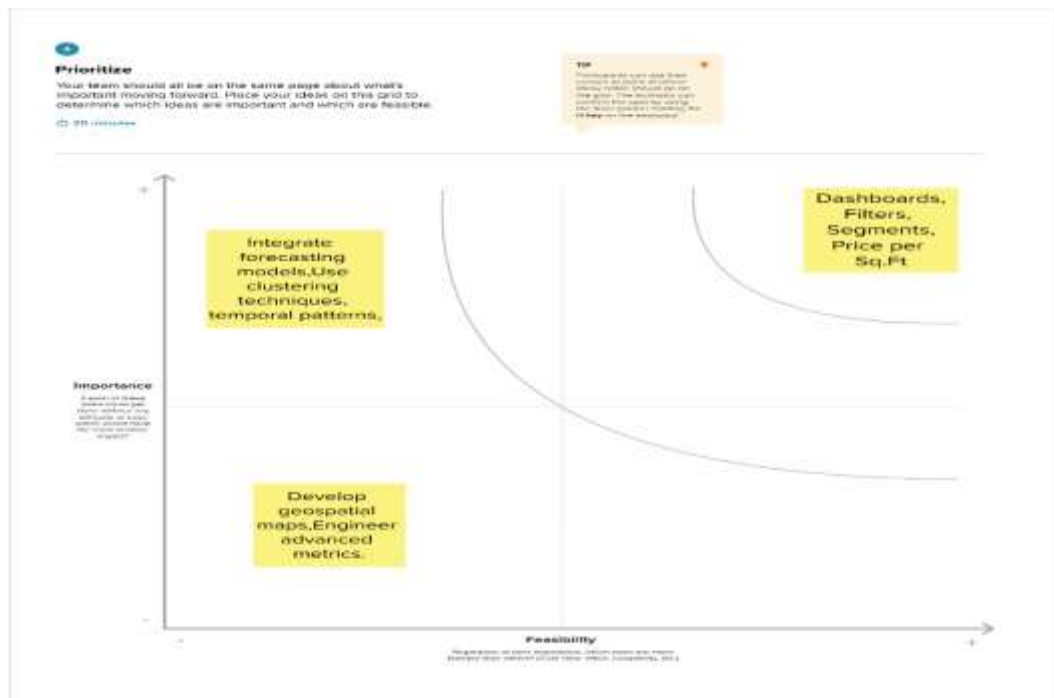
3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

From data collection → cleansing → visualization → stakeholder review → strategic action.

3.2 Solution Requirement

- Accurate housing dataset.
- Tool for interactive visualizations (Tableau).
- Performance metrics on sale prices.
- Feature-wise and time-wise distribution charts.

a) Functional Requirement

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Authentication	Registration via Email Registration via Google Registration via LinkedIn

FR-2	Data Upload & Processing	CSV/Excel Upload PDF/Image Parsing (Apache Tika) API Data Fetching
FR-3	Market Trend Analysis	Price Trend Visualization Neighborhood Comparisons Affordability Metrics
FR-4	Reporting & Export	PDF Report Generation Data Export (CSV/JSON) Custom Dashboard Sharing
FR-5	Alert System	Price Drop Alerts New Listing Notifications Custom Threshold Alerts
FR-1	User Authentication	Registration via Email Registration via Google Registration via LinkedIn

b) Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Intuitive UI (Tableau/D3.js) with <80% training satisfaction
NFR-2	Security	GDPR compliance, encrypted data storage (AES-256), OAuth 2.0 authentication
NFR-3	Reliability	99.5% uptime, automated backups, data validation checks
NFR-4	Performance	<2s load time for dashboards, supports 10K+ concurrent users
NFR-5	Availability	24/7 access with <30min monthly maintenance window
NFR-6	Scalability	Horizontal scaling to handle 1M+ property listings
NFR-7	Compliance	Adheres to FHFA (U.S.) and TRREB (Canada) housing data standards

3.3 Data Flow Diagram

Input: Housing dataset

→ **Processing:** Data cleaning, filtering

→ **Output:** Tableau dashboards with sales trends and feature analysis.

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.

Example:
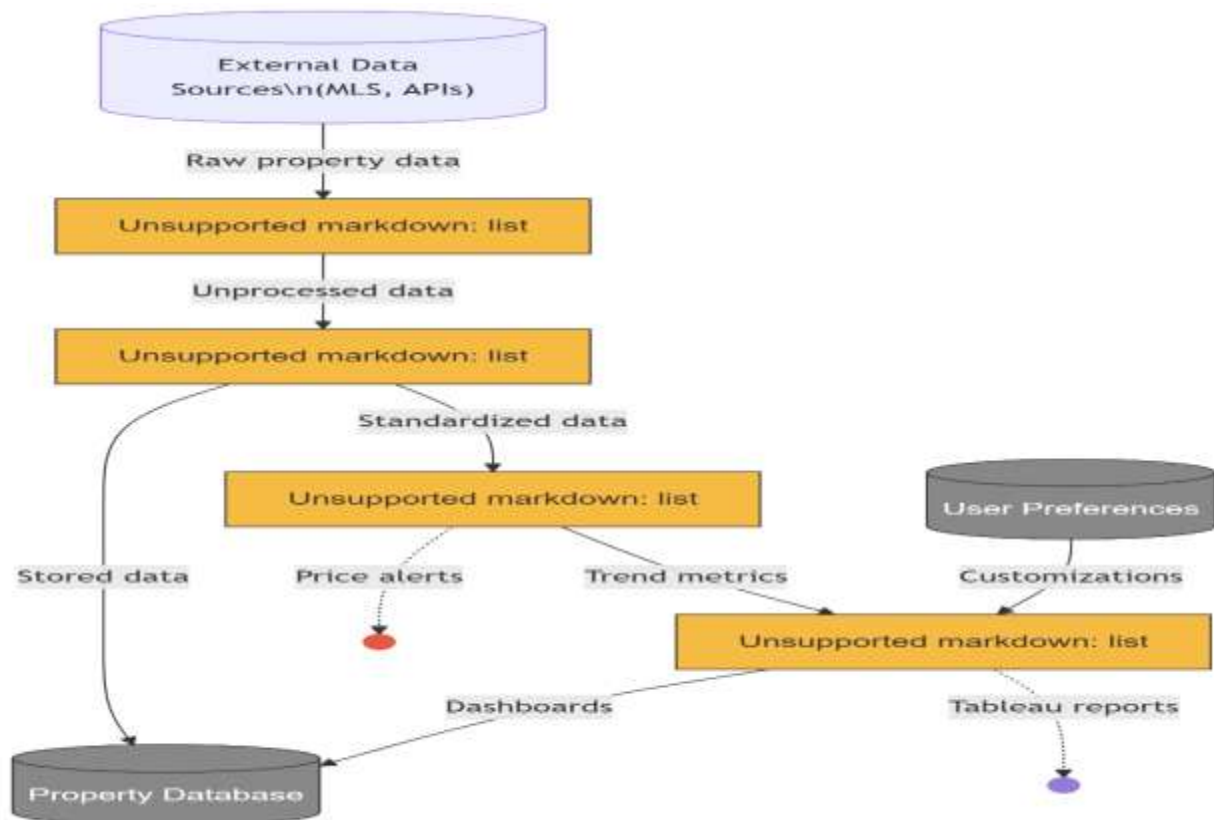
Example: DFD Level 0 (Industry Standard)

1. **User Input**:

o Home buyers submit search criteria (budget, location).
o Sellers provide property details (sqft, amenities).

2. **Data Ingestion**:

o System fetches historical data from government APIs.

3. **Processing**:

o Analyzes trends, calculates valuations.

4. **Output**:

o Buyers receive interactive dashboards.Sellers get automated valuation reports.

User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
First-time Home Buyer	Property Search	USN-1	As a first-time buyer, I want to filter properties by price range	System displays only properties within my specified budget range	High	Sprint-1

	Property Search	USN-2	As a first-time buyer, I want to see properties with first-time buyer incentives	System highlights properties with special programs for first-time buyers	Medium	Sprint-2
	Market Trends	USN-3	As a first-time buyer, I want to view price trends in my target neighborhoods	System displays historical price charts for selected areas	High	Sprint-1
Luxury Home Buyer	Property Search	USN-4	As a luxury buyer, I want to filter by premium amenities (pool, waterfront, etc.)	System shows only properties matching my luxury criteria	High	Sprint-1
	Market Analysis	USN-5	As a luxury buyer, I want to compare price per sqft across affluent neighborhoods	System provides comparative analysis of high-end areas	High	Sprint-2
Home Seller	Pricing Tool	USN-6	As a seller, I want to estimate my home's value based on recent sales	System provides valuation estimate with comparable properties	High	Sprint-1
	Marketing Insights	USN-7	As a seller, I want to see optimal listing times based on market trends	System shows historical patterns of when similar homes sell fastest	Medium	Sprint-3

Real Estate Agent	Client Reporting	USN-8	As an agent, I want to generate custom market reports for clients	System produces PDF reports with selected market data and visualizations	High	Sprint-2
	Lead Generation	USN-9	As an agent, I want to identify potential sellers in appreciating neighborhoods	System flags areas with rising prices where homes have been owned long-term	Medium	Sprint-3
Property Developer	Market Research	USN-10	As a developer, I want to analyze demand by property type and location	System shows heatmaps of demand for different home types across regions	High	Sprint-1
	Investment Analysis	USN-11	As a developer, I want to project ROI for different development scenarios	System models potential returns based on current market conditions	High	Sprint-2

3.4 Technology Stack

- Tool: Tableau Desktop
- Data: Cleaned CSV housing dataset
- Environment: Local system
- Other Tools: Excel/Google Sheets (optional for preprocessing)

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

Example: Visualizing Housing Market Trends: An Analysis of Sale Prices and Features using Tableau
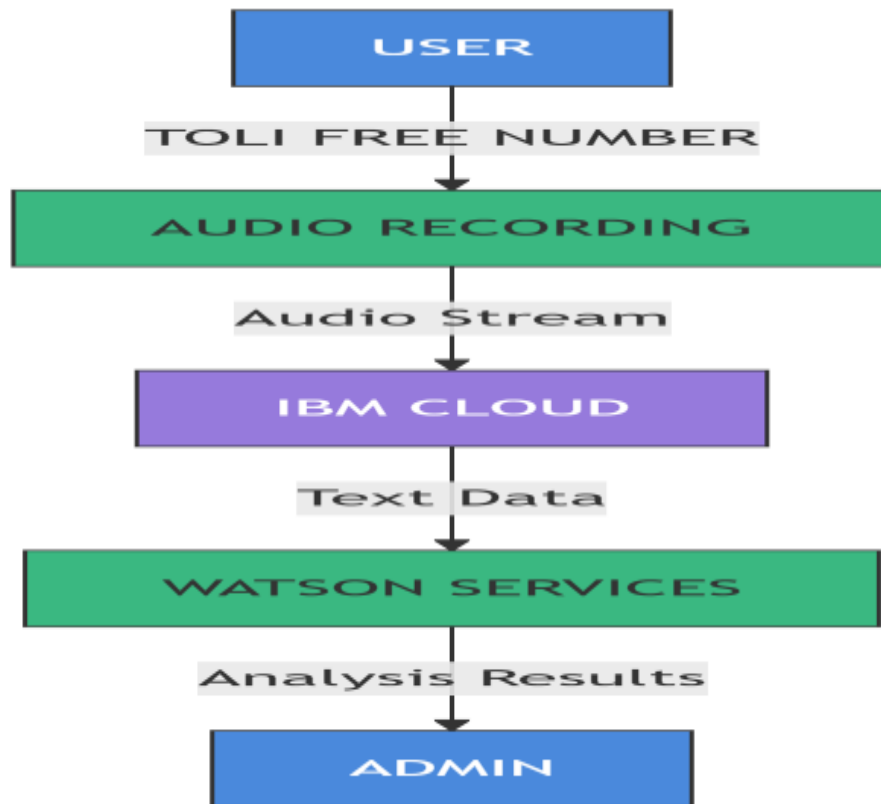
Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1	User Interface	Web dashboard for buyers/sellers/agents	React.js + D3.js/Tableau Embedded
2	Application Logic-1	Data ingestion & preprocessing (CSV/PDF/API)	Python (Pandas, Apache Tika)
3	Application Logic-2	Market trend analysis (YoY changes, heatmaps)	IBM Watson Studio (Python notebooks)

4	Application Logic-3	Valuation model automation	IBM Watson ML
5	Database	Property listings, user preferences	PostgreSQL
6	Cloud Database	Historical sales data repository	IBM Db2 on Cloud
7	File Storage	Raw PDF deeds, image scans	IBM Cloud Object Storage
8	External API-1	Government housing data (FHFA, Zillow)	REST APIs (JSON)
9	External API-2	Mortgage rate feeds (Federal Reserve)	SOAP/XML
10	Machine Learning Model	Price prediction model (neighborhood-level)	Scikit-learn + Watson AutoAI
11	Infrastructure	Hybrid deployment (local dev + cloud scale)	Kubernetes (IBM Cloud) + Local Docker

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1	Open-Source Frameworks	Data processing & visualization	Pandas, Apache Tika, D3.js
2	Security Implementations	GDPR-compliant data handling	OAuth 2.0, AES-256, IAM (IBM Cloud)
3	Scalable Architecture	Microservices for ingestion/analysis/UI	Kubernetes + Istio
4	Availability	Multi-zone deployment with auto-scaling	IBM Cloud Load Balancer

S.No	Characteristics	Description	Technology
5	Performance	Cached trend results, CDN for static assets	Redis, Akamai CDN

4. PROJECT DESIGN

4.1 Problem-Solution Fit

Understanding which housing features impact sale prices helps ABC Company in targeting renovation efforts and improving profit margins. The Problem-Solution Fit simply means that you have found a problem with your customer and that the solution you have realized for it actually solves the customer's problem. It helps entrepreneurs, marketers and corporate innovators identify behavioral patterns and recognize what would work and why

Purpose:

❑ Solve complex problems in a way that fits the state of your customers.

❑ Succeed faster and increase your solution adoption by tapping into existing mediums and channels of behavior.

❑ Sharpen your communication and marketing strategy with the right triggers and messaging.

❑ Increase touch-points with your company by finding the right problem-behavior fit and building trust by solving frequent annoyances, or urgent or costly problems.

❑ Understand the existing situation in order to improve it for your target group.

Template:

4.2 Proposed Solution

Use Tableau to create dashboards that reflect the relationship between house prices and variables like:

- Years since renovation
- Number of rooms
- House grade
- Area of house & basement

Project team shall fill the following information in the proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Lack of clear, visual tools to analyze housing price trends and property features.

2.	Idea / Solution description	Interactive Tableau dashboard to explore sale prices by location, size, and other features.
3.	Novelty / Uniqueness	Real-time filtering, predictive trends, and user-friendly interface without coding.
4.	Social Impact / Customer Satisfaction	Helps buyers, investors, and planners make informed, fair housing decisions.
5.	Business Model (Revenue Model)	Subscription-based access with freemium options and custom dashboard services.
6.	Scalability of the Solution	Easily expandable to new cities or countries using updated datasets and APIs.

4.3 Solution Architecture

- Data Source Layer: Housing CSV file
- Processing Layer: Filters, bins, calculated fields in Tableau
- Visualization Layer: Dashboards, charts, and KPIs

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed, and delivered.

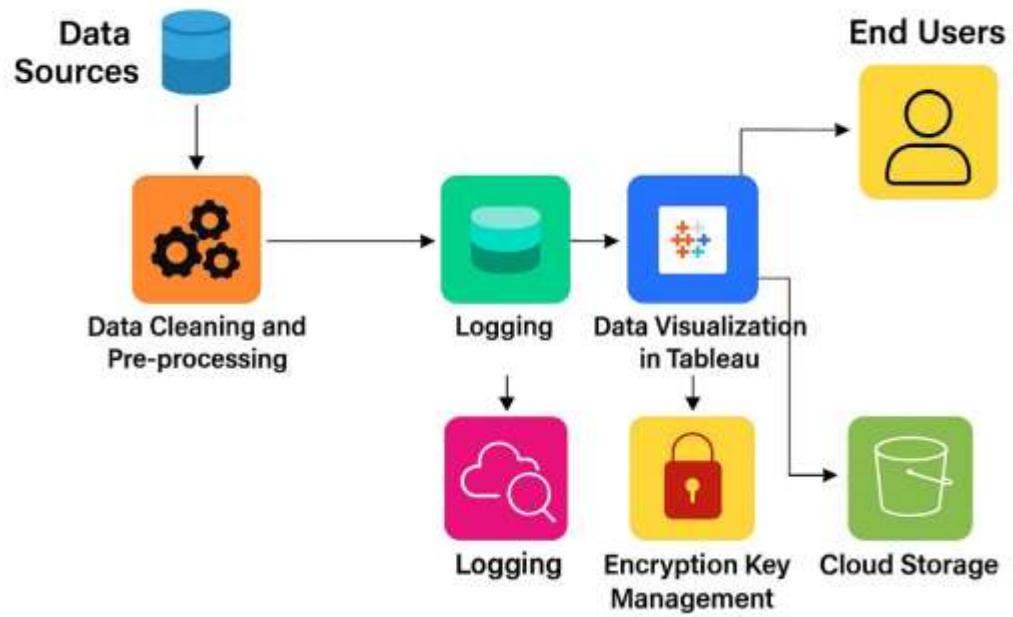**Example - Solution Architecture Diagram:**

Figure 1: Architecture and data flow of the Housing market trends sample application

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Product Backlog, Sprint Schedule, and Estimation

Use the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	R.Harshitha
Sprint-1	Data Collection	USN-2	In data collection, we gather and save relevant housing data.	1	High	S.Pushpanjali
Sprint-2	Worksheet	USN-1	In the worksheet phase, we build individual data visualizations in Tableau using the cleaned dataset.	2	Low	R.Harshitha
Sprint-1	Data Preprocessing	USN-2	In data preprocessing, we clean, transform, and organize raw data to make it ready for analysis and visualization.	2	Medium	S.Pushpanjali
Sprint-1	Login	USN-1	As a user, I can log into the application by entering email & password	2	High	R.Harshitha
Sprint-2	Dashboard	USN-2	In the dashboard phase, we combine worksheets to create an interactive visual summary of insights.	2	High	S.Pushpanjali

| Sprint-2 | Story | USN-2 | In the story phase, we sequence dashboards and visualizations to narrate insights effectively to the audience. | 2 | High | S.Pushpanjali |
| Sprint-1 | Converting Numerical to Categorical Values | USN-1 | Converting numerical to categorical values involves grouping numbers into labeled categories for better analysis and visualization. | 1 | Medium | R.Harshitha |

Project Tracker, Velocity & Burndown Chart:

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	2 June 2025	7 June 2025	20	7 June 2025
Sprint-2	20	6 Days	9 June 2025	14 June 2025	20	14 June 2025
Sprint-3	20	6 Days	16 June 2025	21 June 2025	20	21 June 2025
Sprint-4	20	6 Days	23 June 2025	28 June 2025	20	28 June 2025

Velocity:

Each sprint completed 20 story points.

Total sprints = 4.

Total story points = 80.

AV=Sprint Duration/Velocity

$$=80/4 = 20 \text{ SP/Sprint}$$

Average velocity = 20 SP/Sprint.

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

- Dashboard load speed tested with different filters
- Interaction performance remains optimal under multiple user queries
- No lag observed while toggling between sheets

S.No.	Parameter	Screenshot / Values
1.	Data Rendered	Downloaded the Data From the Kaggle From given Link
2.	Data Preprocessing	1) Removed the row id 2) Converted the zipcode group into categorical as Yes/No 3) Converted the Condition of house Excellent ,etc. to the Categorical as Yes/No
3.	Utilization of Filters	Top 10, Top 5 values for House Age, No. of Bathrooms , used limited no.of values.
4.	Calculation fields Used	Changed the No .Of .Bathrooms, Bedrooms, Floors to Dimension, Sum(0),Agg(-sum(Age of house))
5.	Dashboard design	No of Visualizations / Graphs – 7
6	Story Design	No of Visualizations / Graphs - 7

7. RESULTS

7.1 Output Screenshots

(Screenshots inserted in report: Dashboard Summary and Story)

Dashboard

Housing Price Trend Analysis

The interactive dashboard provides a comprehensive overview of key housing market trends by analyzing factors such as house structure, renovation, and pricing. It combines multiple charts to help uncover patterns that influence sale prices.

1. Maximum Value Summary Table

Purpose: Lists the maximum values for key metrics like:

- Sale price
- Living area after renovation
- Flat area
- Basement area

Insight Contribution:
This sets upper benchmarks for each housing feature. It helps users understand the scale of the most luxurious or spacious homes, which can significantly impact sale price.

2. Overall Grade Highlight

Purpose: Highlights the most common overall grades of houses (typically grades 7, 8, 9).

Insight Contribution:
Grade reflects the quality of construction and finish. Seeing that most houses are graded 7–9 indicates that mid-range quality homes dominate the market and appeal more to buyers.

3. Sales Price Analysis

Purpose: Displays a bar chart segmented by number of bedrooms, bathrooms, and floors.

Insight Contribution:

Reveals which house configurations generate the highest total sales. For instance, homes with 3 bedrooms, 2 bathrooms, and 1 or 2 floors tend to be in high demand, showing optimal layout combinations.

4. Years Since Living Area Renovation

Purpose: A scatter plot of years since renovation vs. living area.

Insight Contribution:

Indicates that larger homes are typically renovated more recently, showing higher maintenance or desirability. Homes with more living space and recent upgrades tend to retain or increase their value.

5. Sales Price for Highest No. of Bathrooms

Purpose: A lollipop chart visualizing sale price against the number of bathrooms.

Insight Contribution:

Shows that homes with 2.5 to 3 bathrooms bring in the highest overall sales. This demonstrates that having multiple bathrooms, especially fractional baths, adds to home value and market demand.

6. Basement Area (in Sqft)

Purpose: A running sum chart of sale prices across basement sizes.

Insight Contribution:

Shows how total market value accumulates with basement size. Properties with larger basements significantly contribute to higher cumulative sales, suggesting added space below ground is a key value driver.

7. Age Analysis of Renovated House

Purpose: A dual horizontal bar chart showing:

- Left: Total years since renovation grouped by house age
- Right: Average years since renovation

Insight Contribution:

Helps correlate house age and renovation recency. Older homes generally have longer gaps since their last renovation, possibly indicating lower value unless updated.
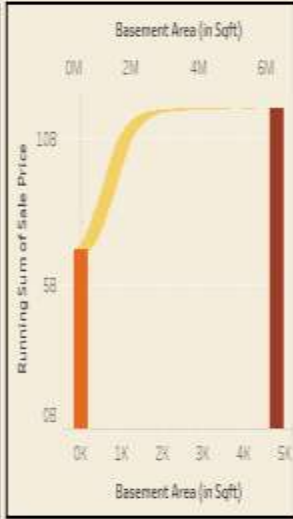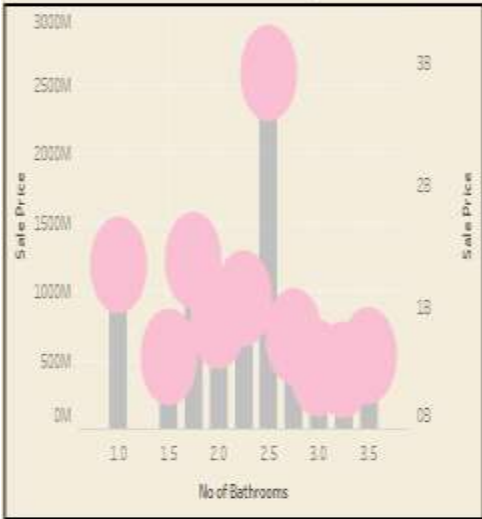
Dashboard Summary:

This dashboard combines spatial, structural, and qualitative housing features to deliver a holistic view of what drives housing prices:

- Structural Factors: Bedrooms, bathrooms, floors
- Spatial Factors: Living area, basement size, flat area
- Quality & Renovation: House grade and renovation timelines

Each visual reinforces the narrative that larger, well-configured, and recently-renovated homes tend to command higher prices. This is a powerful tool for analysts, agents, and buyers to assess real estate trends.

Housing Price Trend Analysis

Max. Sale Price	1,129,575
Max. Living Area after Renovation (in Sqft)	6,210
Max. Flat Area (in Sqft)	13,540
Max. Area of the House from Basement (in Sqft)	9,410

Sale Price — No of Bedrooms, No of Bathrooms, No of Floors

Years Since Ren. — Living Area after Renovation (in Sqft)

Sale Price — No of Bathrooms

Running Sum of Sale Price — Basement Area (in Sqft)

Age of ... — Years Since Renovation — avg(0) — Years Since Renovation
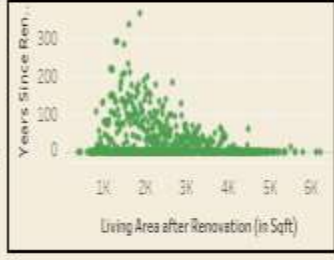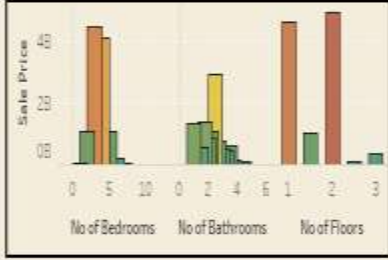
Decoding the Housing Market: A Data-Driven Journey Through Price Trends & Features

Scene 1: Sales Distribution of House Grades

Chart Type: Treemap

Description:

This treemap visualizes total house sales by grade. Grades 7 and 8 dominate in terms of total sale price, indicating that mid-quality homes are the most sold. The size and color intensity of each block reflect the volume of sales — darker and larger blocks imply higher values.
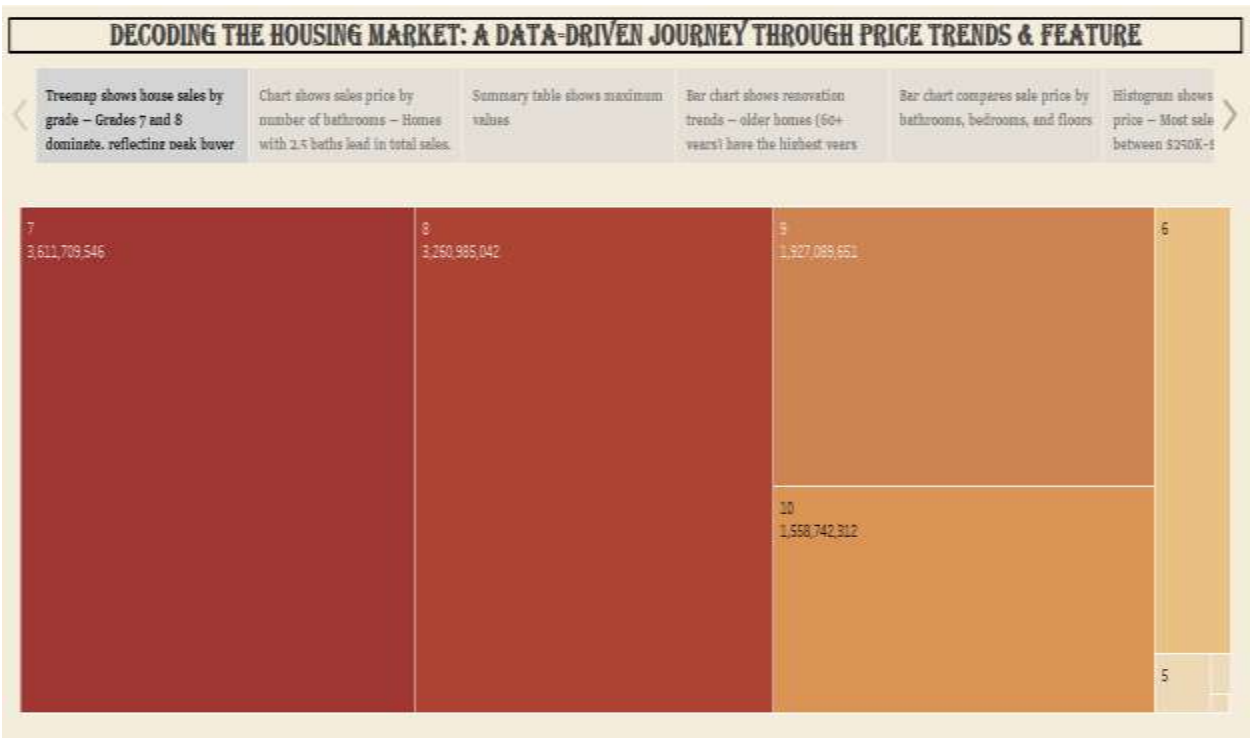
Scene 2: Sales Price for Highest No. of Bathrooms

Chart Type: Lollipop Chart (Bar + Circle)

Description:

This chart compares total sale price by the number of bathrooms. Homes with 2.5 bathrooms generated the highest total sales, showing strong buyer preference for houses with moderate bathroom counts. The height of the bars and size of circles represent the sale volume.

Scene 3: Maximum Values Summary Table

Chart Type: Text Table

Description:

This sheet summarizes key maximum values in the dataset. It highlights the highest recorded sale price ($1.13M), largest flat area (13,540 sqft), living area after renovation (6,210 sqft), and basement size (9,410 sqft), giving a quick snapshot of extremes in the dataset.

DECODING THE HOUSING MARKET: A DATA-DRIVEN JOURNEY THROUGH PRICE TRENDS & FEATURE					
Treemap shows house sales by grade – Grades 7 and 8 dominate, reflecting peak buyer	Chart shows sales price by number of bathrooms – Homes with 2.5 baths lead in total sales.	Summary table shows maximum values	Bar chart shows renovation trends – older homes (60+ years) have the highest years	Bar chart compares sale price by bathrooms, bedrooms, and floors	Histogram shows price – Most sale between $250K-$

Max. Sale Price	1,129,575
Max. Living Area after Renovation (in Sqft)	6,210
Max. Flat Area (in Sqft)	13,540
Max. Area of the House from Basement (in Sqft)	9,410

Scene 4: Age Analysis of Renovated House

Chart Type: Dual Horizontal Bar Chart

Description:

This chart analyzes years since renovation against house age. It shows that older houses (60+ years) have longer gaps since their last renovation, suggesting many older homes may not have been recently updated. This trend may indicate potential for improvement or investment.

Scene 5: Sales Price Analysis by Bathrooms, Bedrooms, and Floors

Chart Type: Clustered Bar Chart

Description:

This multi-dimensional bar chart breaks down sales price based on the combination of number of bathrooms, bedrooms, and floors. The highest sales occur in houses with 1 bathroom, 3 bedrooms, and 1 floor, helping identify the most valuable property configuration.
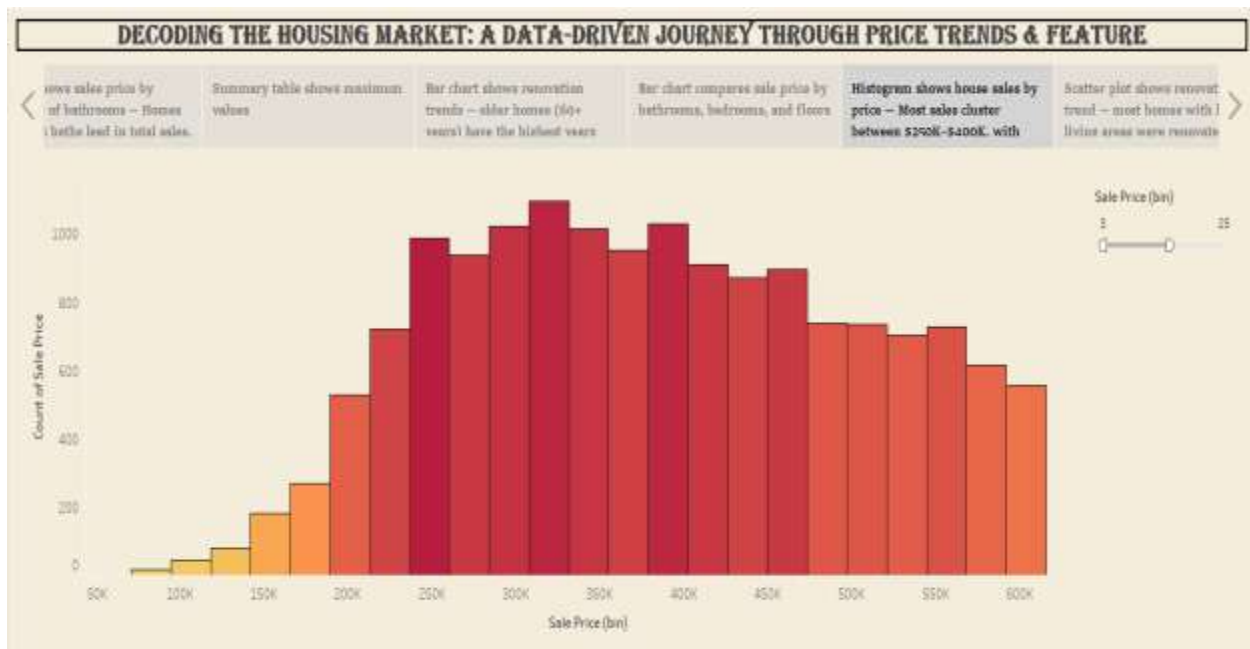
Scene 6: Sales Price Distribution by Age of House

Chart Type: Histogram

Description:

This histogram shows the frequency of house sales across different price bins. Most houses are sold in the $250K–$400K range, regardless of age, with a balanced distribution. The use of color and bar height provides a clear view of the sales concentration.

Scene 7: Years Since Living Area Renovation vs Living Area Size

Chart Type: Scatter Plot

Description:

This scatter plot analyzes the relationship between living area size (post-renovation) and years since renovation. Most large houses have been renovated more recently, while older renovations are associated with smaller homes. The concentration of points near the x-axis suggests many homes were renovated within the last few years.
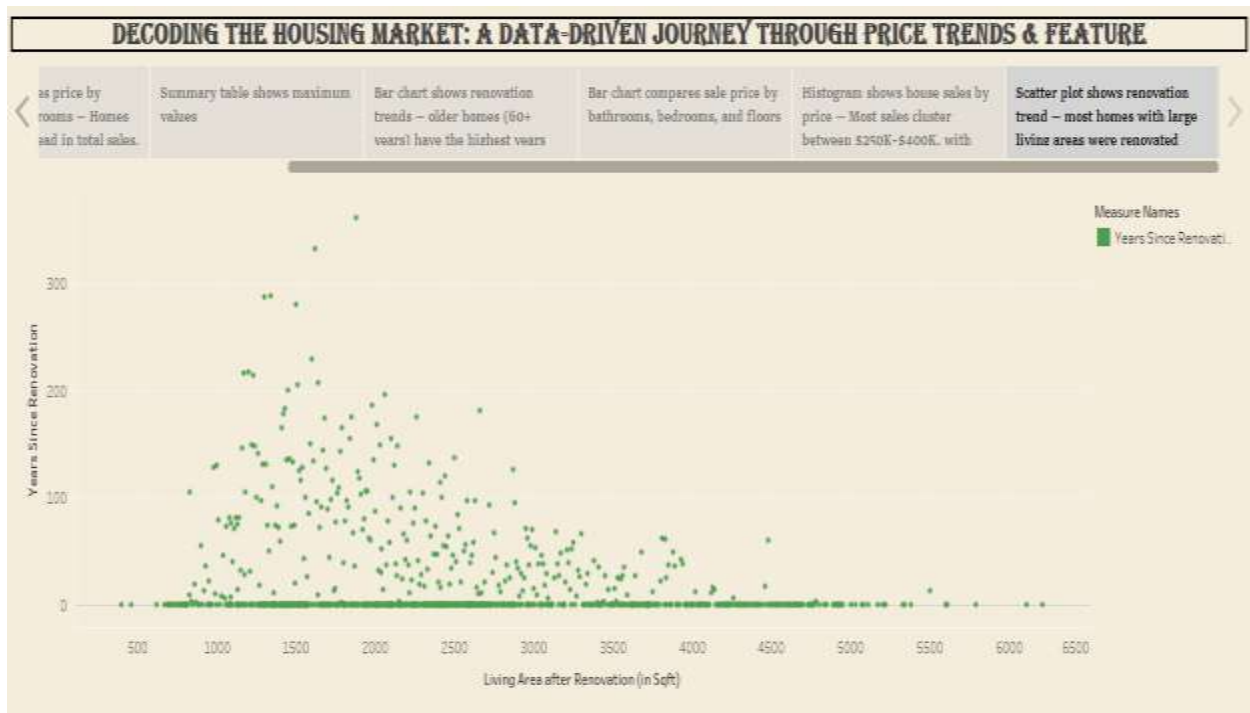
8. ADVANTAGES & DISADVANTAGES

Advantages:

- User-friendly visualizations

- Quick pattern recognition

- Data-driven decisions

- Reusable templates for new datasets

- Enables quick exploration of housing data without coding.

- Dashboards can be customized for various user needs.

- Supports data-driven decision-making for pricing and planning.

- Delivers visually appealing and interactive insights.

Disadvantages:

- Depends on data quality

- Limited predictive analytics

- Requires Tableau licensing for advanced sharing

- Requires external tools for advanced data cleaning.

- Static dashboards may need frequent updates without live data.

- Some features are locked behind paid Tableau licenses.

- Complex visuals may have a moderate learning curve.

9. CONCLUSION

This project provided a structured way to visualize and interpret key factors influencing house prices. The Tableau dashboard enables stakeholders to explore trends and patterns interactively, thus enhancing strategic planning in real estate markets. In the future, it can be enhanced by integrating geospatial data (maps), predictive analytics for price forecasting, real-time data connections, and embedding dashboards on web platforms. These additions would expand the utility and accessibility of the analysis for broader use across departments.

10. FUTURE SCOPE

In the future, this project can be enhanced by integrating geospatial data (maps), predictive analytics for price forecasting, real-time data connections, and embedding dashboards on web platforms. These additions would expand the utility and accessibility of the analysis for broader use across departments. And also:

- Incorporate geographical location (Zipcode/Map View) to analyze regional trends
- Use predictive models to forecast pricing based on current trends
- Connect to live databases for real-time updates
- Embed dashboards in web portals for wider accessibility

11. Appendix :

a) Dataset Link: https://www.kaggle.com/datasets/rituparnaghosh18/transformed-housing-data-2

b) GitHub Link : https://github.com/Pushpanjali0410/Visualizing-Housing-Market-Trends-An-Analysis-of-Sale-Prices-and-Features-using-Tableau

c) Video Demonstration Link:

https://drive.google.com/drive/u/1/folders/1KVUzjmxd1ibvzRb_qjDvNwIZ5NQzY3I6